

WHAT IS CLAIMED IS:

1. A viscous fluid coupling connected to an engine, comprising:

a drive shaft connected to a rotation shaft of the engine;

a housing rotatably supported to said drive shaft;

an operation plate set in said housing so as to divide a space defined by said housing into a reservoir and an operation chamber, said operation plate having a communication hole communicating the reservoir and the operation chamber;

viscous fluid in the reservoir and the operation chamber;

a rotor disposed in the operation chamber and being fixed to said drive shaft;

a valve mechanism closing and opening the communication hole according to ambient temperature of said housing to control a flow rate of said viscous fluid from the reservoir to the operation chamber;

a driven wheel fixed to said housing so as to be located between said operation plate and said rotor; and

a torque transmitting section including a plurality of first annular projections concentrically formed on an outer peripheral portion of said driven wheel and a plurality of second annular projections concentrically formed on an outer peripheral portion of said rotor, the first annular projections being overlappedly adjacent with the second annular projections so as to be fluidly coupled with each other through said viscous fluid.

2. A viscous fluid coupling as claimed in Claim 1, wherein said torque transmitting section is arranged not to be dipped in said viscous fluid when the engine is stopping.

3. A viscous fluid coupling as claimed in Claim 1, wherein said rotor has a plurality of lightening holes which penetrate said rotor in its thickness direction, the lightening holes being disposed so as not to be dipped in said viscous fluid when the engine is stopping.

4. A viscous fluid coupling as claimed in Claim 1, wherein a height of the first annular projections is different from a height of the second annular projections.

5. A viscous fluid coupling as claimed in Claim 1, wherein a height of each of the first annular projections is generally the same as the height of the other of the first annular projections, and a height of each of the second annular projections is lower than the height of the first annular projections and is generally the same as the height of the other of the second annular projections.

6. A viscous fluid coupling as claimed in Claim 1, wherein a height of each of the second annular projections is generally the same as the height of the other of the second annular projections, and a height of each of the first annular projections is lower than the height of the second annular projections and is generally the same as the height of the other of the first annular projections.

7. A viscous fluid coupling as claimed in Claim 1, wherein heights of the first annular projections are generally equal with each other, and heights of the second annular projections are arranged such that the height of inner several of the second annular projections located at an inner side in the diametrical direction is higher than outer several of the second annular projections located at an outer side in the diametrical direction.

8. A viscous fluid coupling as claimed in Claim 1, wherein heights of the second annular projections are generally equal thereamong, and heights of the first annular projections are arranged such that heights of inner several of the second annular projections located at an inner side in the diametrical direction are higher than those of outer several of the first annular projections located at an outer side in the diametrical direction.

9. A viscous fluid coupling as claimed in Claim 1, wherein heights of the first annular projections are generally equal with each other, and heights of the second annular projections are arranged such that the heights of the second annular projections are gradually decreased from an inner side to an outer side in the diametrical direction.

10. A viscous fluid coupling as claimed in Claim 1, wherein heights of the second annular projections are generally equal with each other, and heights of the first annular projections are arranged such that the heights of the first annular projections are

gradually decreased from an inner side to an outer side in the diametrical direction.

11. A viscous fluid coupling as claimed in Claim 1, wherein the first annular projections and the second annular projections are arranged such that an overlapped amount therebetween at an outer side in the diametrical direction is smaller than the overlapped amount at an inner side in the diametrical direction.

12. A viscous fluid coupling as claimed in Claim 1, wherein said driven wheel is installed to said housing so that an auxiliary chamber is located at a position of the communication hole.

13. A viscous fluid coupling as claimed in Claim 1, wherein said operation plate is fixed to said housing through caulking portions of said housing, said driven wheel having an annular groove for receiving the caulking portion.

14. A viscous fluid coupling as claimed in Claim 1, wherein said driven wheel includes a passage having a lateral passage through which said viscous fluid flows from the communication hole at the outer peripheral portion of said driven wheel and a vertical passage formed at a tip end portion of the lateral passage.